Space Weather Forecast

Issued on Wednesday, 05 June 2024 at 11:55 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Mainly Moderate activity throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with two Moderate flares observed from the complex region now in the southwest disc. This region has been the source of most the recent activity and continued to lose leader spots, with a gradual growth of penumbra around its trailer. The region also simplified slightly. Slight growth was also evident two further regions, one in the northwest and another in the south-centre disc, however these persisted as simple and inactive bipolar regions. The other regions remained small and simpler.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery, however this doesn't include the period since the two Moderate flares.

Solar Wind / Geomagnetic Activity: Solar winds have been slightly elevated at 400-450km/s, with a brief enhancement to 500km/s around 05/0300 UTC, before easing again. This is perhaps attributable to a weak CME glance that was expected, but this is low confidence. Interplanetary Magnetic Field (IMF) remained weak with the north-south component also weak, initially mainly positive (northward), before becoming more variable from 05/0300 UTC. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is forecast with further Moderate-class flares likely and a slight chance of isolated Strong-class flares, these mainly from the complex sunspot in the southwest disc.

Solar Wind / Geomagnetic Activity: There remains a slight chance of influence from the glancing of a Moderate-flare CME which occurred 01/1940 UTC, however this is low confidence. Otherwise, background to slightly elevated winds are expected, but with a chance of an enhancement later on day 4 (08 Jun) due to the onset of fast winds from a coronal hole. Geomagnetic activity is expected to be mainly Quiet with Unsettled intervals, but with a chance of a spell of Quiet to Unsettled and a slight chance G1 Minor Storms. This due to either the CME glance day 1 (05 Jun) or the faster winds on day 4 (08 Jun).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to persist at background levels, with only a slight chance of rising in association with any notable flaring that occurs.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	1	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	80	70	65	60
Very Active	R3 to R5 X	No	15	10	10	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	10	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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